

WELLNESS UPDATE 2003, #5

PREVENTING AND TREATING THIGH BRUISES

Bruises to the front of the thigh (quadriceps) occur with some degree of regularity, especially in football. Thigh bruises usually occur when a player's head, shoulder, or knee forcefully come in contact with the front of another player's thigh. **Classic symptoms of a significant quadriceps bruise are immediate, and often severe, pain; almost immediate swelling; stiffness; and loss of function and range-of-motion.** Usually, within several minutes of the injury, the player is unable to actively flex the knee to 90 degrees, or more, without a great deal of pain.

Symptoms of a significant quadriceps bruise are immediate, and often severe, pain; almost immediate swelling; stiffness; and loss of function and range-of-motion.

In football, the prevention of thigh bruises is best accomplished by requiring each athlete to wear **properly fitting thigh pads**. **Properly fitting football thigh pads should protect the front of the thigh from injury.** Thigh pads that do not fit snugly against the front of the thigh offer little protection, as they often shift to the outer side of the leg. In such cases, smaller pants will most likely correct the situation. If smaller pants are not an option, taping the thigh pads in place will also work, although it may be expensive over the course of the year. In younger, inexperienced players it may be necessary to **demonstrate for them proper placement of the thigh pads in the pants and the proper position of the pads** for the greatest amount of protection. It should be emphasized with all players that, **in order to offer any protection, thigh pads must cover the front of the thigh during participation.**

In other sports, prevention is more difficult as bruises often result simply from the athlete being in the wrong place at the wrong time.

Properly fitting football thigh pads should protect the front of the thigh from injury.

Treatment of thigh bruises should begin immediately after the injury is identified. Keeping the knee in a *pain-free*, flexed position and using the RICE procedure will provide the best treatment results. (A review of the RICE procedure is provided at the end of this Wellness Update.) The more severe the bruise, the more important it is to keep the leg in a *pain-free*, flexed position.

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Placing the leg in a *pain-free*, flexed position will assist in maintaining range-of-motion and help reduce the swelling. Both of which will promote healing and help the athlete return to participation more quickly.

After receiving a thigh bruise that impairs performance, the athlete should immediately be removed from participation. The athlete should remove any clothing or protective padding from the injured leg and carefully move the knee to a *pain-free*, flexed position. An ice bag should be wrapped onto the thigh using an elastic wrap. Place a thin, damp towel between the ice bag and the skin to reduce the possibility of frost bite. Another elastic wrap may be used to help maintain the knee in a *pain-free*, flexed position.

Figure 2: Courtesy of Christopher M. Larson, MD



FIGURE 2. A college football player who sustained a quadriceps contusion in practice is treated with flexion and an ice wrap to lessen swelling and the likelihood of myositis ossificans. Acute treatment consisted of flexion to tolerance, compression, and cooling.

The ice bag should be kept in place for 20-30 minutes, but no longer than 30 minutes. During the first 24 hours, the injury should be iced for 20-30 minutes, every few hours. An elastic wrap should provide **constant** pressure and mild support to the injured area, and the knee should be kept in a **pain-free**, flexed position as much as possible. Total rest will help reduce swelling and discomfort. If necessary, crutches should be used to assist the athlete in walking. **If the athlete is experiencing pain, swelling, stiffness, and loss of function, they should be referred to a physician or other sports medicine professional.**

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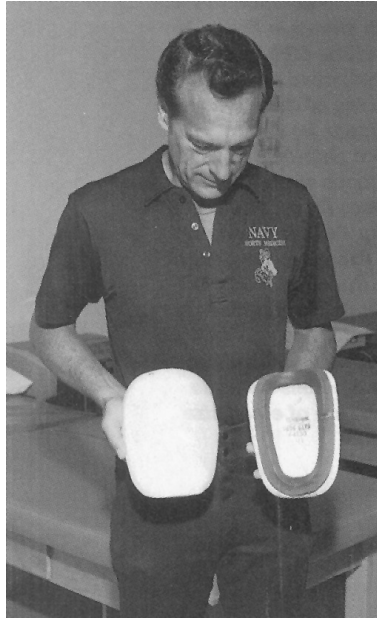
After the first 24 hours, the injury should be iced for at least 20-30 minutes, every 3-4 hours while awake until swelling and pain are controlled. An elastic wrap should provide **constant** pressure and mild support to the injured area, and the knee should be kept in a **pain-free**, flexed position, as much as possible.

Exercise should be limited to activity that can be done **pain-free**. In the early stages after injury that will probably include very mild stretching while the athlete is lying on their stomach and **pain-free** tightening of the quadriceps's muscle while lying on the back or in a seated position. As pain allows, the athlete can progress to walking, swimming, jogging, riding a stationary bike, and running. Ice should be applied for 20-30 minutes after any stretching or exercise, no matter how easy it may have been.

Guidelines for returning to full participation are:

- 1) **equal strength** in the injured thigh as compared to the uninjured thigh,
- 2) **very little, if any pain**, and,
- 3) **knee flexion of approximately 120 degrees, or more.** To measure approximately 120 degrees of knee flexion have the athlete sit in a chair with both knees flexed at 90 degrees. Then, have him/her slide the foot of the injured leg back and under the chair until the toes are even with the heel of the uninjured leg. The athlete should be able achieve this bend of the knee when standing on the uninjured leg and bending the knee of the injured leg.

Upon returning to full participation, especially in football, a protective pad should be worn for the remainder of the season, even for light workouts. Without such a pad the risk of re-injury is greatly increased, in any sport. A football thigh pad with a ring of foam or felt glued inside to form a space over the bruise works well. The pad should be held in place using an elastic wrap, even if covered with football pants.



SOURCES: Arnheim, Daniel D., ATC. Modern Principles of Athletic Training, St. Louis:Times Mirror/Mosby College Publishing, 1989; Aronen, John Gary, MD & Chronister, Raymond D., ATC. "Quadriceps Contusions," The Physician and Sportsmedicine, Volume 20, Number 7, 1992; Athletic Training and Sports Medicine, American Academy of Orthopaedic Surgeons, 1984, Larson, Christopher, et al. "Evaluating and Managing Muscle Contusions and Myositis Ossificans," The Physician and Sports Medicine, Volume 30, Number 2, February 2002.

RICE PROCEDURE FOR THIGH BRUISES

The four basic principles of the **RICE** procedure are **Rest, Ice, Compression, and Elevation**. Utilizing these four principles will help prevent and/or reduce swelling, discomfort, loss of function and will result in faster healing time and quicker return to participation.

REST means to promptly stop using the injured area and allow adequate time for the injury to heal. **Rest may include anything from avoiding any unnecessary or excessive use, to the use of crutches.** The rest period may vary from one day to several weeks.

ICE means to **apply ice to the injured area for 20-30 minutes every 2-3 hours for the first 24 hours and every 3-4 hours while awake, after that, until swelling and pain are controlled.** An ice bag is an excellent way to apply ice to thigh bruises. It is recommended that **a thin, damp towel be placed between the ice bag and the skin to reduce the possibility of frostbite.**

COMPRESSION means to wrap an elastic wrap around the injured thigh. This helps prevent swelling which can cause pain and limit movement. **Great care needs to be taken not to get the elastic wrap too tight. The wrap should be SNUG, not tight.** If the toes of the injured leg become numb or lose color, remove the wrap immediately. After all feeling and color have returned, the wrap may be reapplied more loosely.

ELEVATION means to **keep the injured thigh above the athlete's heart, when possible. If this is not possible, elevating the injured area to a comfortable height is recommended.** Pillows, blankets, or towels may be used to help elevate the leg.